Replacement Of Up To Eighteen (18) Existing Piling

Programmatic Biological Evaluation
Replacement Of up to Eighteen (18) Existing Piling
Version: October 13, 2000

1. Summary of Activity:

a. For all Fresh Waters *excluding* the Columbia River mainstem: Replacement of up to eighteen (18) existing piling with non-treated piling, provided that: work is done within the approved work window; no work is done in or adjacent to an existing or previously designated Superfund site or a site currently or previously designated for cleanup under the Washington State Model Toxic Cleanup Act; no piles are associated with log raft booms; no sheet piling is used in lieu of pole piling; existing piles are partially cut with a new pile secured directly on top, fully extracted, or cut 2-feet below the mudline; if treated piles are fully extracted or cut 2-feet below the mudline, the holes or piles are capped with appropriate material (such as clean sand, or plastic or steel pile cap for cut piles) to ensure that the chemicals from the existing pile do not leach into the adjacent sediments or water column. If fill (i.e. clean sand) is used to cap the area, the fill material should match sediment substrate of the site; removed creosote treated piles are cut into maximum lengths of 4 feet prior to disposal; if a barge is used, the barge does not ground out and the barge is not over or adjacent to vegetated shallows (except where such vegetation is limited to State-designated noxious weeds); hydraulic water jets are not used to remove or place piles; and piles are replaced in the same general location and do not extend beyond the footprint of the existing structure (i.e. pier). [from NWP 3 or LOP]

b. For the Columbia River mainstem *including* Snake River and Baker Bay: Replacement of up to eighteen (18) existing piling with non-treated piling, provided that: work is done within the approved work window; no work is done in or adjacent to an existing or previously designated Superfund site or a site currently or previously designated for cleanup under the Washington State Model Toxic Cleanup Act; no piles are associated with log raft booms; no sheet piling is used in lieu of pole piling; existing piles are partially cut with a new pile secured directly on top, fully extracted, or cut 2-feet below the mudline; if treated piles are fully extracted or cut 2-feet below the mudline, the holes or piles are capped with appropriate material (such as clean sand, or plastic or steel pile cap for cut piles) to ensure that the chemicals from the existing pile do not leach into the adjacent sediments or water column. If fill (i.e. clean sand) is used to cap the area, the fill material should match sediment substrate of the site; removed creosote treated piles are cut into maximum lengths of 4 feet prior to disposal; if a barge is used, the barge does not ground out and the barge is not over or adjacent to vegetated shallows (except where such vegetation is limited to State-designated noxious weeds); hydraulic water jets are not used to remove or place piles; and piles are replaced in the same general location and do not extend beyond the footprint of the existing structure (i.e. pier). [from NWP 3 or LOP]

c. For all Marine/Estuarine Waters *excluding* Baker Bay: Replacement of up to eighteen (18) existing piling, provided that: work is done within the approved work window; no work is done in or adjacent to an existing or previously designated Superfund site or a site currently or previously designated for cleanup under the Washington State Model Toxic Cleanup Act; no piles are associated with log raft booms; no sheet piling is used in lieu of pole piling; no piles treated with creosote or pentachlorophenol are used; existing piles are partially cut with a new pile secured directly on top, fully extracted, or cut 2-feet below the mudline; if treated piles are fully extracted or cut 2-feet below the mudline, the holes or piles are capped with appropriate material (such as clean sand, or plastic or steel pile cap for cut piles) to ensure that the chemicals from the existing pile do not leach into the adjacent sediments or water column. If fill (i.e. clean sand) is used to cap the area, the fill material should match sediment substrate of the site; removed creosote treated piles are cut into maximum lengths of 4 feet prior to disposal; if a barge is used, the barge does not ground out and the barge is not over or adjacent to vegetated shallows; hydraulic water jets are not used to remove or place piles; and piles are replaced in the same general location and do not extend beyond the footprint of the existing structure (i.e. pier); use of vibratory pile drivers is prohibited where the piling is located in or adjacent to eelgrass beds. [from NWP 3 or LOP]

2. Programmatic Description: Individual permits (IPs), letters of permission (LOPs), Nationwide Permit 3 (NWP 3), and several Regional General Permits (RGPs) may authorize the replacement of existing piling in navigable waters of the U.S. in the State of Washington. This programmatic biological evaluation applies only to such activities where a maximum of 18 piles will be replaced. Piling replacement activities that do not fall under the parameters of this programmatic biological evaluation will need to undergo individual informal or formal ESA consultation.

3. Project Location: In all navigable fresh and marine/estuarine waters only in the counties of Washington State where the National Marine Fisheries Service and U.S. Fish and Wildlife Service have concurred that the project is not likely to adversely affect listed fish species and designated critical habitat and will not jeopardize proposed fish species or destroy or adversely modify proposed critical habitat.

4. Project Description: Replacement of up to eighteen (18) existing piling in all navigable waters of Washington State.

This programmatic biological evaluation does not cover any interrelated and/or interdependent activities in any of the designated critical habitat areas or areas used by listed or proposed fish species, except those activities distinctly specified.

5. Project Construction Description:[1]

a. Construction Equipment: Pile driving equipment varies but generally consists of an open barge with crane and a guide on the end of the barge for placement of piling in specific locations. Some barges are self-propelled while others are assisted by a tug boat or work skiff. If a work barge is large, long steel spuds are generally used by lowering them to the bottom to keep the barge in position. For smaller barges, anchors are dropped or cables are attached to an onshore object and winches are then used to position the barge. Barges are typically 150 feet in length, but up to 250 feet long. The length of barge used depends on the depth of pile replacement. For private piers, shorter barges are generally used. The barge anchors into position by dropping "spuds" – large steel piles that act as anchors at each corner of the barge. The tug boat is a maximum of 60 feet in length with engine power equivalent to an 100-foot long pleasure vessel.

b. Construction Methods:

1. Pile removal: Three methods are used to repair or replace piling: partial cutting with new pile secured directly on top, full extraction, or cutting below the mudline.

a. Partial cutting with new pile secured directly on top: The extent of disrepair or deterioration of the pile is first assessed. If the pile is only partially deteriorated, then the deteriorated portion of the pile is removed and a new "top" or "stub-pile" is placed on the pile by using a "sleeve" (usually a 10- to 12-inch diameter pipe). If in marine waters, the "stub-pile" is treated wood, usually chemonite. The pipe or sleeve is placed on the portion of the pile remaining after cutting has occurred, and the new "top" is secured to the pipe/sleeve and existing pile with steel bolts.

Concrete may also be used to connect the two piles. For this method, a "seam" where the piles are joined is fitted with a steel form/collar. The form/collar tightly fits on the pile, so that no concrete leaks out of the form/collar. The concrete is then poured into the collar through a tremie, which is a long flexible tube attached to a cement mixer located on the pier or dock. The mouth of the tremie is placed at the bottom of the steel collar and concrete is pumped in from the bottom of the form. While the concrete is being poured, the tremie nozzle is submerged within the concrete at all times to ensure that no concrete leaches from the mix into the water column. The tremie is raised as the level of concrete rises, but remain below the surface level of the concrete. The pouring of the concrete is stopped when the surface level is below the top of the form to prevent overflow. All

[1] Information on construction techniques for piling replacement was obtained by personal communication with John Pell, Navigation Specialist, Corps of Engineers, Regulatory Branch on February 15, 2000 and Steve Zuvela, Waterfront Construction, on May 5, 2000.

concrete is contained within a steel collar and does not come into contact with the water column either during placement or during the life of the project.[2]

b. Full extraction: If partial cutting is not an option and the pile is not too deteriorated or rotted, then the pile is removed in its entirety. Constraints to removal are if the pile is so rotted that it falls apart or breaks during removal or if the pile is driven firmly and deep into the substrate where the pile will break upon attempts at full extraction. For full extraction, the pile is removed either by use of a "choker" chain and crane or with a vibratory pile drive. For the "choker" method, the "choker" chain is placed securely around the pile and then by using a crane mounted on a barge, the pile is pulled directly up until it is completely out of the substrate. For the vibratory pile driving method, the vibratory pile driver is mounted on a barge and the vibratory hammer is clamped onto the top of the pile. The vibration of the pile driver loosens the pile from the substrate. The vibratory hammer is raised directly upward as the pile loosens until the pile is completely free from the substrate. The vibratory method is the preferred method, especially when the pile is firmly secured in the substrate. There is less likelihood for the pile to break. Once removed, the pile is placed on the barge and disposed of at an appropriate upland location (disposal depends on chemical treatment of piling). Hydraulic water jets are sometimes used to loosen piles, but are not covered under this programmatic biological evaluation.

c. Pile cut below the mudline: When the pile is either too deteriorated or rotted to the extent that extraction would cause greater impacts because of the pile breaking and subsequent needs to removal all material dispersed in the water column, then the pile is cut below the mudline. If the pile inadvertently breaks during extraction, cutting will also then occur along with removal of the broken portions within the water column. The piles are cut by a diver underwater using a pneumatic saw. Depending on the height of the piles, they may be cut in sections. Once at the mudline, the area around the pile is excavated with a clamshell or hydraulic dredge to expose the pile so that it may be cut. The dredged materials are placed, secured and contained on the barge and disposed at a Washington State Department of Ecology approved upland disposal site. Some sediment is placed on the barge, either accumulated on the removed piling or inadvertently excavated with the piling removal. This sediment is likely to run-off the barge and back into the water column. However, the amount of sediment from either of these sources is a very small amount and any water quality impacts associated with the run-off is at insignificant and/or discountable levels.

The area where the piling was removed is then capped with adjacent material or other capping options such as clean/washed sand, or placement of a steel or hard plastic cap directly on the pile. If the pile being removed is treated wood, then the area will be capped to ensure that the chemicals (i.e. creosote) do not leach into the adjacent substrate. Capping material depends on the substrate,

[2] Information on the "tremie" and concrete method was obtained from "Construction and Repair Methodologies: Washington State Ferries", prepared by Pacific International Engineering, 1999.

current conditions, and boat activity (potential for propwash) at the site. The same equipment used to excavate the material is typically used to place the capped material: a clamshell dredge or tremie. Appropriate capping includes but is not limited to clean/washed sand or hard plastic cap (i.e. PVC piping) or steel cap. Adjacent material may be used if uncontaminated.

2. Pile placement: Upon removal of the piling, new or recycled piling are driven using a barge-mounted pneumatic pile driver, standard drop-hammer, or vibratory pile driver. A pile is lowered through the piling-guide until it rests in place on the bottom and then driven in place. Pneumatic pile drivers are most common today but the older pile drivers using a heavy weight dropping on top of the pile are still being used. Hydraulic water jets are not covered as a method of pile placement under this programmatic biological evaluation.

c. Materials Used: The use of wood, steel, concrete, or plastic piling may be used. All piling used in fresh waters, including the Columbia River shall be non-treated. All piling replaced in marine or estuarine waters shall not be treated with creosote or pentachlorophenol. In some Washington lakes, older piers used sheet piling in lieu of timber piles to support the structure. When replacing damaged sheet piling, only replacement with pole-type piles is covered under this informal consultation.

d. Cleanup: All piling to be replaced and piling debris shall be completely removed from the aquatic environment. Creosote or other treated piles will be cut into a maximum of 4-foot lengths prior to disposal, in order to be covered by this informal consultation.

e. Construction Timing: The replacement of up to eighteen (18) existing piling will be accomplished in a maximum of seven work days.

6. Action Area Description: The action area for the replacement of up to eighteen (18) existing piling in all navigable fresh, marine, and estuarine waters of Washington State is the pile being replaced, a 25-foot radius[3] around each pile for potential water quality impacts due to pile driving, and a 1000-foot radius[4] around each pile for potential noise impacts associated with pile driving. If there is any interrelated or interdependent work associated with the piling replacement, such work would need to undergo individual informal or formal ESA consultation. Such work is not covered by this programmatic biological evaluation on piling replacement.

[3] The determination of impact area for potential water quality impacts is based on personal communication with John Malek, Sediment Management, Environmental Protection Agency, on May 10, 2000. Mr. Malek stated that typically turbidity impacts of a pile driving, anchor placement or the like would not exceed a 15-foot radius, a 25-foot radius is the maximum extent of impact, regardless of substrate type and currents at a project site.

[4] The determination of direct impact area for noise impacts associated with pile driving of 1000-foot radius around the pile is based on information provided in Feist, 1991.

7. Species and Habitat Information:

a. Species Present: [5]

1. For all fresh waters in Washington State, *excluding* the Columbia River mainstem and its tributaries: Puget Sound chinook salmon - status threatened (designated critical habitat); Hood Canal chum salmon - status threatened (designated critical habitat); Coastal/Puget Sound bull trout - status threatened; Ozette Lake sockeye salmon - status threatened (designated critical habitat); SW Washington/Columbia River/Coastal cutthroat trout - proposed threatened; and, Puget Sound coho salmon - candidate species.

2. For the Columbia River mainstem and its tributaries in Washington State, *including* Snake River and Baker Bay: Snake River sockeye salmon - status endangered (designated critical habitat); Snake River spring/summer chinook salmon - status threatened (designated critical habitat); Snake River fall chinook salmon - status threatened (designated critical habitat); Snake River steelhead - status threatened (designated critical habitat); Columbia River chum salmon - status threatened (designated critical habitat); Columbia River bull trout – status threatened; Lower Columbia River steelhead – status threatened (designated critical habitat); Lower Columbia River chinook salmon – status threatened (designated critical habitat); Middle Columbia River steelhead – status threatened (designated critical habitat); Upper Columbia River steelhead – status endangered (designated critical habitat); Upper Columbia River spring chinook salmon – status endangered (designated critical habitat); Upper Willamette River chinook salmon – status threatened (designated critical habitat); Upper Willamette steelhead – status threatened (designated critical habitat); and, SW Washington/Columbia River/Coastal cutthroat trout – proposed threatened.

3. For all marine/estuarine waters in Washington State, *excluding* Baker Bay: Puget Sound chinook salmon, status threatened (designated critical habitat), Hood Canal chum salmon, status threatened (designated critical habitat), Coastal/Puget Sound bull trout, status threatened, Ozette Lake sockeye salmon, status threatened (designated critical habitat), SW Washington/Columbia River/Coastal cutthroat trout, proposed threatened, and, Puget Sound coho salmon, candidate species.

b. Species Utilization: Refer to Appendix B - Species Life Histories.

8. Activity History and Status: The following table is a breakdown of the number of pile replacement activities authorized by the Corps of Engineers. The breakdown is organized by year and waterbody. The waterbody includes all

[5] Other listed or proposed plants or animals may occur in the project area. However, this document addresses only listed or proposed fish species. Review of impacts to other listed or proposed species will be done on a case-by-case basis.

creeks, streams, and unnamed tributaries that flow into it unless otherwise noted. Each of the waterbodies is categorized as below:

a. Marine: All marine waters within Washington State (i.e., Pacific Ocean, Willapa Bay, Grays Harbor, Strait of Juan de Fuca, Strait of Georgia, Puget Sound, Hood Canal, Sammish Bay, Skagit Bay, Totten Inlet, Dabob Bay, Commencement Bay, etc.). Because of the design of the Corps database, it was not possible to separate out tidal areas from minor freshwater creeks, streams, and unnamed tributaries that flow into these waterbodies.

b. Fresh: All fresh waters within Washington State including all rivers, tributaries, lakes, and reservoirs (regardless of size) and excluding the Columbia River mainstem. (i.e., Snoqualmie River, Skagit River, Puyallup River, Nisqually River, Cowlitz River, Yakima River, Wenatchee River, Snake River, Pend Oreille River, Lake Washington, Lake Sammamish, Lake Chelan, Moses Lake, Baker Lake, Spanaway Lake, etc).

c. Columbia River: Mainstem Columbia River within Washington State, including the Snake River, Baker Bay, and lakes and reservoirs (i.e. Lake Entiat, Lake Wallula, Franklin D. Roosevelt Lake, Priest Rapids Lake, etc.). Data for all tributaries are included under freshwater areas.

To determine the number of authorized pile replacements, all finalized permit actions were queried against the key word “NWP 3” and cross-referenced with the work type “pile.” The cross-referencing ensures that the activity is properly categorized and each NWP 3 verification is only counted once. NWP 3 activities do not require “notification” to the Corps, therefore the data set below represents only those activities where the Corps was notified and a verification was actually issued, via a Nationwide Permit. The following data also includes before– and, when applicable, after-the-fact authorizations.

The 1999 data from WDFW recorded 120 piling replacement activities in marine waters and 62 piling replacement activities in fresh waters, for a total of 182 piling replacement activities authorized in 1999. In comparing the Corps database with one year of data from WDFW (1999) for piling replacement, the Corps database represents approximately 14 % of the actual number of piling replacement activities.

Table 1: Historical Record of Corps Authorization of Pile Driving

WATERBODY	**1995**	**1996**	**1997**	**1998**	**1999**
Marine	23	27	21	17	15
Fresh	9	7	8	6	10
Columbia River	1	3	0	1	0
TOTAL	**33**	**27**	**29**	**24**	**25**

Because no notification is required for NWP3, the Corps acknowledges that tracking of piling replacement has been inconsistent and infrequent. In light of the recent listings under ESA, the Corps proposes to track these activities as outlined in the "Programmatic Biological Evaluation Notification and Tracking Description".

9. Environmental Baseline: Refer to Appendix C – Environmental Baseline.

10. Effects of the Action:

a. Direct Effects:

1. Water Quality (turbidity): Under the terms of this informal programmatic consultation, work is done within approved work windows when listed, proposed or forage fish are least likely to be present. The removal of existing piling, the driving of replacement piling, placement of capping material, the placement of spuds or anchors to anchor the barge, and associated propwash from the tug and barge will have a temporary impact on water quality. All of these activities would produce temporary, localized sediment plumes within the action area that would dissipate following cessation of the activity. The "plume" should settle out of the water column to background levels within an hour, depending on sediment type and currents. Any necessary excavation of material is removed with a clamshell or hydraulic dredge, then placed and contained on the barge. During excavation, small de minimus amounts of sediment may fall from the dredge before reaching the barge. As outlined in Appendix F: Implementation Conditions, appropriate erosion and sedimentation control measures will be taken. Potential for sediment to enter the waterbody either during excavation or from the barge after excavation will be insignificant. When work proceeds as described, the impacts to water quality due to pile driving and pile removal are insignificant and/or discountable.

2. Water Quality (chemical contaminants from piling removal): It is possible that removal of piling within existing or previously designated Superfund Clean-up sites or sites currently or previously designated for clean-up under the Washington State Model Toxic Clean-up Act could result in exposure of hazardous or toxic chemical contaminants within the substrate (sediments contaminated by industrial pollutants). Thus, to be covered by this informal programmatic consultation, piling replacement projects will not be located in or adjacent to (within 300 feet) of such areas. In other areas, the removal of treated piling may resuspend sediments contaminated by the existing treated piles. Partial cutting of the piling may result in the exposure of undried chemical treatments to the water column at the center of the pile. Under partial cutting, the pile will have a metal sleeve with another pile directly secured on top of the existing pile. When partial cutting is done, the work is done at low water, where the majority of the pile is exposed. However, depending on where the cut is made, the work may be done below the water surface. Since the pile will be

capped with another pile immediately (no more than 3 hours of exposure), the exposure of the chemicals to the water column will be temporary and insignificant. Full extraction of the pile may result in either the pile breaking and exposing undried chemicals in the center of the pile to the water column or the suspension of contaminated sediments around the pile into the water column. If the pile is likely to break, then the pile is cut versus extracted. This expedites removal, as well as, limits the potential for contaminants from the pile itself to enter the water column. For both full extraction and cutting below the mudline, this programmatic biological evaluation requires that the hole or pile be capped with appropriate material to ensure that contaminants do not leak to the adjacent substrate. Cutting the pile 2-feet below the mudline may result in the expose of undried chemical treatments to the water column at the center of the pile or the suspension of contaminated sediments around the pile into the water column. The pile will be capped with appropriate material to ensure that contaminants do not leak to the adjacent substrate. Using these methods of construction, impacts due to chemical contamination from the removal of the piling are insignificant and/or discountable.

3. Water Quality (chemical contaminants from replacement piling): It is possible that removal of piling within existing or previously designated Superfund Clean-up sites or sites currently or previously designated for clean-up under the Washington State Model Toxic Clean-up Act could result in exposure of hazardous or toxic chemical contaminants within the substrate (sediments contaminated by industrial pollutants). Thus, to be covered by this informal programmatic consultation, piling replacement projects will not be located in or adjacent to (within 300 feet) of such areas. In addition, only untreated piles will be used in fresh waters and no piles treated with creosote or pentachlorophenol will be used in marine/estuarine waters, in order to be covered by this informal consultation. Studies by NMFS have shown that the primary metal of concern in pile treatment is copper as it is the “most acutely toxic” (NMFS, 1998). Copper has been shown to be the most actively leaching metal with arsenic and chromium rating second (Warner and Solomon, 1990). About 300 compounds including polycyclic aromatic hydrocarbons (PAHs) – which are also known to be very toxic and bioconcentrate - are found in creosote. (NMFS, 1998) Exposure to these chemicals could result in the death of both adults and juveniles of the listed or proposed fish species or prey organisms. (NMFS, 1998.) Dioxins are found in pentachlorophenol. When wood is treated with pentachlorophenol, the dioxins may leach into the water column. Exposure of female fish species, including salmon and trout, to dioxins and dioxin-like contaminants cause increased larval mortality. (Hornung, et al., 1998). Using these methods of installation, there will be no harm or death occurring to listed, proposed or forage fish species.

To be covered under this informal programmatic consultation, all piling replaced in fresh waters, including the Columbia River, shall be non-treated. Similarly, all piling replaced in marine or estuarine waters will not be treated with creosote or

pentachlorophenol. The activity constructed as described will have insignificant and/or discountable impacts to water quality.

4. Habitat Health (noise impacts): Pile driving activities (both removal and placement) can generate considerable noise and vibration impacts. Juvenile pink and chum salmon have shown some avoidance of an immediate area of pile driving activity, but did not change their shoreline orientation or cease foraging (Feist et al., 1996). There is no conclusive evidence showing any long term effects on juvenile growth rates or feeding patterns from noise or vibration generated from pile driving activities. In order to ensure that adult and juvenile listed or proposed fish species will not be disturbed by pile driving noise or vibration, pile driving covered by this programmatic biological evaluation will be limited to approved work windows when listed, proposed or forage fish species are least likely to be present. The activity constructed as described will have insignificant and discountable impacts to species behavior.

5. Habitat (listed, proposed and forage fish spawning habitat): Under the terms of this informal programmatic consultation, work will be done in the approved work windows for listed, proposed and forage fish and if a barge is used, the barge will not ground out and will not be placed over or adjacent to vegetated shallows (except where such vegetation is limited to State-designated noxious weeds). The work is replacement of piles at existing structures. Pile replacement activities occur in marine systems, lakes and large rivers. The listed or proposed salmonid species typically do not spawn in these areas though chinook salmon have been documented in large rivers and, in rare instances, on lake beaches. Forage fish species are likely to spawn on beaches in the marine/estaurine nearshore areas if substrate size and elevation are adequate. Degradation to the listed, proposed or forage fish spawning or nursery areas by the presence of the structure and piles and associated activity has already occurred. If listed, proposed or forage fish species are still spawning in these areas, pile replacement of this amount (18 piles or less) constructed within the approved work windows when listed, proposed or forage species are least likely to be present, will have insignificant impacts on the spawning habitat. Pile removal and pile driving activities may disturb vegetated shallows. (NOAA, 1998) Vegetated shallows can support forage species that the listed or proposed fish species are dependent upon, such as herring spawning in eelgrass beds in marine areas. Using these methods of installation, additional impacts to spawning areas or nursery areas will be insignificant and/or discountable.

<u>b. Indirect effects:</u>

1. Water Quality (chemical contaminants from old piling): Once old piles are removed, they are often sought out for recycling or re-use. Since many of the old piles were treated with creosote, their re-use could re-introduce effects into other waterbodies. To be covered by this informal programmatic consultation, removed creosote-treated or other treated piles will be cut into a maximum of 4-

foot lengths prior to disposal. When work activities proceed as described, indirect effects from piling replacement will be insignificant and/or discountable.

2. There are no other effects that would result from this activity that are later in time. As described herein, the activity will result in no substantive change in the current environmental baseline and no positive effect on the recovery of salmonid species, except for the fact that creosote treated piling will be removed from the aquatic ecosystem and replaced with either untreated piling in fresh waters or other less impacting treated piling in marine/estuarine waters. Spawning habitat for listed, proposed or forage fish are likely to have already been disturbed by the operation of the existing structure (boat moorage and/or water access). There might be a slight increase in use in that operation of the structure may have been limited by the damaged piling. However, this change in the operation of the structure by the pile replacement will be insignificant. In the likelihood that spawning areas are present for listed, proposed or forage fish species and utilized, spawning areas will remain and utilization will continue with insignificant impacts, as the change to the operation of the structure is insignificant.

c. For all other pathways and indicators not specifically mentioned above, the activity will not alter the present environmental baseline.

d. Determination of Effect: The replacement of up to eighteen (18) existing piling may affect, but is not likely to adversely affect listed fish species and designated critical habitat identified above and will not jeopardize proposed fish species or destroy or adversely modify proposed critical habitat identified above, provided that:

1. For all Fresh Waters in Washington State *excluding* the Columbia River mainstem:

- Work is done within the approved work window.
- No work is done in or adjacent to an existing or previously designated Superfund Clean-up sites or a site currently or previously designated for cleanup under the Washington State Model Toxic Cleanup Act.
- Only non-treated piling are used.
- No piles are associated with log raft booms.
- No sheet piling is used in lieu of pole piling.
- Existing piles are partially cut with a new pile secured directly on top, fully extracted, or cut 2-feet below the mudline.
- If treated piles are fully extracted or cut 2-feet below the mudline, the holes or piles are capped with appropriate material (such as clean sand, or plastic or steel pile cap for cut piles) to ensure that the chemicals from the existing pile do not leach into the adjacent sediments or water column. If fill (i.e. clean sand) is used to cap the area, the fill material should match sediment substrate of the site; removed creosote treated piles are cut into maximum lengths of 4 feet prior to disposal.

- If a barge is used, the barge does not ground out and the barge is not over or adjacent to vegetated shallows (except where such vegetation is limited to State-designated noxious weeds).
- Hydraulic water jets are not used to remove or place piles.
- Piles are replaced in the same general location and do not extend beyond the footprint of the existing structure (i.e. pier).

2. For the Columbia River mainstem in Washington State *including* Snake River and Baker Bay:

- Work is done within the approved work window.
- No work is done in or adjacent to an existing or previously designated Superfund Clean-up sites or a site currently or previously designated for cleanup under the Washington State Model Toxic Cleanup Act.
- Only non-treated piling are used.
- No piles are associated with log raft booms.
- No sheet piling is used in lieu of pole piling.
- Existing piles are partially cut with a new pile secured directly on top, fully extracted, or cut 2-feet below the mudline.
- If treated piles are fully extracted or cut 2-feet below the mudline, the holes or piles are capped with appropriate material (such as clean sand, or plastic or steel pile cap for cut piles) to ensure that the chemicals from the existing pile do not leach into the adjacent sediments or water column. If fill (i.e. clean sand) is used to cap the area, the fill material should match sediment substrate of the site.
- Removed creosote treated piles are cut into maximum lengths of 4 feet prior to disposal.
- If a barge is used, the barge does not ground out and the barge is not over or adjacent to vegetated shallows (except where such vegetation is limited to State-designated noxious weeds).
- Hydraulic water jets are not used to remove or place piles.
- Piles are replaced in the same general location and do not extend beyond the footprint of the existing structure (i.e. pier).

3. For all Marine/Estuarine Waters *excluding* Baker Bay:

- Work is done within the approved work window.
- No work is done in or adjacent to an existing or previously designated Superfund Clean-up sites or a site currently or previously designated for cleanup under the Washington State Model Toxic Cleanup Act.
- No piles are associated with log raft booms.
- No sheet piling is used in lieu of pole piling.
- No piles treated with creosote or pentachlorophenol are used.
- Existing piles are partially cut with a new pile secured directly on top, fully extracted, or cut 2-feet below the mudline.
- If treated piles are fully extracted or cut 2-feet below the mudline, the holes or piles are capped with appropriate material (such as clean sand, or plastic or

steel pile cap for cut piles) to ensure that the chemicals from the existing pile do not leach into the adjacent sediments or water column. If fill (i.e. clean sand) is used to cap the area, the fill material should match sediment substrate of the site.

- Removed creosote treated piles are cut into maximum lengths of 4 feet prior to disposal.
- If a barge is used, the barge does not ground out and the barge is not over or adjacent to vegetated shallows.
- Hydraulic water jets are not used to remove or place piles.
- Piles are replaced in the same general location and do not extend beyond the footprint of the existing structure (i.e. pier).
- Use of vibratory pile drivers is prohibited where the piling is located in or adjacent to eelgrass beds.